Association between osteopontin expression and thyroid disease biomineralization

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Diseases of the thyroid gland (TG) are often accompanied by the appearance of mineral formations, called calcifications . Diagnostic and prognostic value of biomineral formations in pathology of TG is ambiguous because a wide range of clinicians, morphologists and patients are interested in this phenomenon. It is known that the processes of biomineralization increase some protein`s expression. Special interest includes the protein osteopontin (OPN) in connection with its probable participation in tumor growth processes, metastasis, atherosclerosis dystrophic calcification, hypoxia, adhesion and differentiation of cells, and many others [1, 2].

Objective: Determine the expression level of OPN in biomineralized tissue of colloid goiter, malignant and benign tumors.

Materials and methods. In the work were studied 40 samples of postoperative thyroid tissue pathology using immune-histochemical method. All samples were fixed in formalin and concluded in paraffin blocks. Histological sections were stained with hematoxylin - eosin. Executed immune-histochemical determination of the expression of OPN antibody company «Thermo Fisher» semiquantitative evaluation of results are: 0 points - lack of response, a score of 1 - weak reaction, 2 points - moderate reaction, 3 points - severe reaction.

Results. Signs of biomineralization were microscopically confirmed in 30 samples (13 - follicular and papillary carcinoma, 8 - follicular adenomas, 9 - colloid nodular goiter). 10 samples of thyroid tissue without evidence of mineralization (colloid goiter) formed the control group. During immune-histochemical investigation of OPN expression in the control group samples of thyroid revealed a weak positive reaction in almost all samples (2 results showed moderate expression). During the analysis of OPN expression in all groups biomineralized malignant tissues, benign tumors and thyroid colloid goiter was revealed the moderate expression level of studied protein. Significant difference in the expression of OPN, depending on thyroid abnormal tissue proliferative potential have not been identified.

Thus, it appears obvious direct connection of OPN expression and biomineralization processes in thyroid tissues, protein expression level, likely, depends on the degree of calcification severity. OPN has no direct influence on the processes of thyroid gland proliferation and carcinogenesis.

Literature

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